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Two new species of the genus *Leptoneta* Simon, 1872 (Araneae: Leptonetidae) from Korea

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Two new species of litter-inhabiting leptonetid spiders in mountainous region from Korea are described: *Leptoneta chilbosanensis* sp. nov. from Mt. Chilbosan, Gyeonggi-do, and *Leptoneta naejangsanensis* sp. nov. from Mt. Naejangsan, Jeollabuk-do from Korea.

Keywords: Araneae, description, Korea, *Leptoneta chilbosanensis* sp. nov., *Leptoneta naejangsanensis* sp. nov., Leptonetidae

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Introduction

Leptonetids are very tiny (1.0-3.0 mm) haplogyne spiders. Most species have six distinctively arranged eyes with the anterior median eyes absent. Their legs are long and slender. They construct irregular sheet webs in plant litter on the ground or in the corner of caves and mines. Currently, Leptonetidae is composed of 22 genera, with 72 described species in the genus *Leptoneta* occurring in the Europe, Mediterranean region, and Southeast and Fareast Asia (Platnick 2014). In Korea, 19 species of *Leptoneta* have been recorded from caves and plant litter (Paik *et al*., 1969; Paik, 1980; 1985; Paik and Seo, 1982; 1984; Namkung, 1987; 2001; Seo, 1989; Kim, Lee, and Namkung, 2004; Kim *et al*., 2004). Most of Korean letonetid spiders showed high regional endemism because they are not found in areas other than type localities. This paper describes two new litter-inhabiting leptonetids, *Leptoneta chilbosanensis* sp. nov. from Mt. Chilbosan, Gyeonggi-do, and *Leptoneta naejangsanensis* sp. nov. from Mt. Naejangsan, Jeollabuk-do Chungcheongbuk-do, from Korea.

Materials and Methods

The external morphology was examined using a stereoscopic dissecting microscope (Nikon SMZ 745T), and illustrated; measurements were made with an ocular micrometer and are given in millimeters. Body and appendages measurements are given as "length × width". Leg measurements are given as "leg number, total length (femur, patella + tibia, metatarsus, and tarsus)". Palp measurements are listed as "total length (femur, patella + tibia, cymbium)". The following abbreviations are used: ALE, PME, PLE = anterior lateral, posterior median, and posterior lateral eyes, respectively; AER, PER = anterior and posterior eye rows (composed of ALE and PLE + PME, respectively).

Systematic Accounts

Order Araneae Clerck, 1757
Family Leptonetidae Simon, 1890
Genus *Leptoneta* Simon, 1872

Small sized species (body length 1.0-3.0 mm). Carapace usually with needle-shaped fovea. Six eyes with the PME separated from the strongly recurved ALE and PLE; ALE and PME usually continuous. Chelicera margin with teeth. Legs slender, leg formula usually 1-4-2-3. Male palp usually with strong spines on ventral surface of femur, and/or with strong spines or apophysis on tibia, bulb fairly simple. Female with a pair of spermathecae, atrium oval to triangular in shape.

***Leproneta chilbosanensis* sp. nov.**
칠보산잔나비거미 (신칭) (Fig. 1A-H)

Holotype. 1 male from Mt. Chilbosan, Hwaseong-si, Gyeonggi-do, Korea, (30 July 2005, ST Kim); Paratype. 2 male with same collecting data as holotype.
Etymology. The specific name refers to the type locality.
Diagnosis. Present new species is similar to *Leptoneta kwangreungensis* Kim *et al*., 2004 in general appearance, but can be distinguished by the shape and arrangement of cheliceral teeth, the shape of sternum, and the shape of embolus, conductor and lamina of male palpal bulb.
Measurements (in mm). Body length 1.56, AER 0.08, PER 0.11, ALE 0.05, PME 0.04, PLE 0.04, Carapace 0.70 × 0.61, Chelicera 0.37 × 0.17, Endite 0.28 × 0.15, Labium 0.07 × 0.10, Sternum 0.50 × 0.28, Abdomen 0.82 × 0.68. Legs: I, 4.53 (1.25, 1.47, 0.96, 0.85); II, 3.30 (1.03, 1.10, 0.71, 0.46); III, 2.74 (0.76, 0.89, 0.61, 0.48); IV 4.32 (1.21, 1.55, 0.95, 0.61). Palp 0.92 (0.48, 0.23, 0.21).
Description. Male: Carapace yellowish brown, ovoid, longer than wide; thoracic region dark yellowish brown, rimmed; cervical furrow distinct and radial furrow indistinct, fovea blackish brown, spiniform; clypeus gently elevated (Fig. 1A). Six eyes well developed protruding from the carapace surface; ALE and PLE closely spaced in semicircular pattern; PLE separated from each other and from PME by 0.16 and 0.50 times their diameter, respectively; PME separated from each other by 1.28 times their diameter; all eyes encircled with a narrow black line; axes of PLE converge posteriorly; PME contiguous and parallel; PER longer than AER (Fig. 1B, C). Chelicerae yellowish brown, longer than wide, weakly developed; promargin with 8 small denticles; numerous small warts between the both margins; covered sparsely with blackish brown long hairs (Fig. 1D). Endite yellowish brown; concaved medially. Labium yellowish brown. Sternum yellowish brown and mottled, longer than wide, convex; covered densely with blackish brown hairs; margin enclosed with blackish brown line (Fig. 1E). Legs pale yellowish brown; slender and weakly developed; tarsi fairly weak and flexible; covered densely with blackish brown hairs and spines; no particular pattern; leg formula 1-4-2-3. Abdomen dull grayish yellow, ovoid, longer than wide; posterior end almost straight; anterior end with several blackish brown long hairs; covered densely with blackish brown hairs; no particular dorsal pattern (Fig. 1A). Spinnerets tiny, pale and dull yellowish brown. Palp with short and pointed tibial apophysis; cymbium covered densely with long and thick spines; embolus short, beak shaped; conductor slightly curved; median apophysis long and slim, needle shaped; lamina twisted with pointed tip (Fig. 1F-H).
Distribution. Korea (Mt. Chilbosan, Hwanseong-si, Gyeonggi-do: 37°27′16″N, 126°93′69″E, 137 m altitude).
Remarks. This species was collected with pitfall traps in the forest of mountain.

***Leproneta naejangsanensis* sp. nov.**
내장산잔나비거미 (신칭) (Fig. 2A-H)

Holotype. 1 male from Mt. Naejangsan, Jeongeup-si, Jollabuk-do, Korea, (04 June 2013, ST Kim and SY Lee).
Etymology. The specific name refers to the type locality.
Diagnosis. Present new species is similar to *Letoneta coreana* Paik, Yaginuma, and Namkung, 1969 in general appearance, but can be distinguished by the shape and arrangement of cheliceral teeth, the shape of sternum, and the shape of tibial apophysis, shape of embolus, conductor and lamina of male palpal bulb.
Measurements (in mm). Body length 1.96, AER 0.10, PER 0.13, ALE 0.05, PME 0.06, PLE 0.05, Carapace 0.73 × 0.67, Chelicera 0.30 × 0.13, Endite 0.21 × 0.14, Labium 0.06 × 0.10, Sternum 0.54 × 0.49, Abdomen 1.12 × 0.85. Legs: I, 8.79 (1.47, 3.66, 2.17, 1.49); II, 6.83 (1.15, 2.60, 1.63, 1.45); III, 4.83 (0.95, 1.95, 0.80, 1.13); IV 7.61 (1.38, 3.15, 1.78, 1.30). Palp 0.94 (0.45, 0.25, 0.24).
Description. Male: Carapace blackish brown, ovoid, longer than wide; thoracic region dark blackish brown, rimmed; cervical furrow and radial furrow dark blackish brown and distinct, fovea reddish brown, spiniform; clypeus gently elevated (Fig. 2A). Six eyes well developed protruding from the carapace surface; ALE and PLE closely spaced in semicircular pattern; PLE separated from each other and from PME by 0.11 and 0.69 times their diameter, respectively; PME separated from each other by 1.38 times their diameter; all eyes ringed with a narrow black band; axes of PLE converge posteriorly; PME contiguous and parallel; PER longer than AER (Fig. 2B, C). Chelicerae blackish brown, longer than wide, weakly developed; darker anteriorly, lighter posteriorly; promargin with 9 teeth (Fig. 2D). Endite pale blackish brown; concaved medially; margin dark blackish brown; covered sparsely with dark blackish brown long hairs. Labium pale blackish brown; slightly concaved anteromedially; margin dark blackish brown. Sternum dull blackish brown and mottled, shield-shaped, longer than wide, convex; covered sparsely with several blackish brown long hairs; some blackish brown markings visible (Fig. 2E). Legs pale blackish brown; slender and weakly developed; metatarsi and tarsi fairly weak and flexible; covered densely with transparent and blackish brown hairs and spines; no particular pattern; leg formula 1-4-2-3. Abdomen pale and dull blackish brown, ovoid, longer than wide; both sides fairly wrinkled; covered sparsely with dark blackish brown hairs; no particular

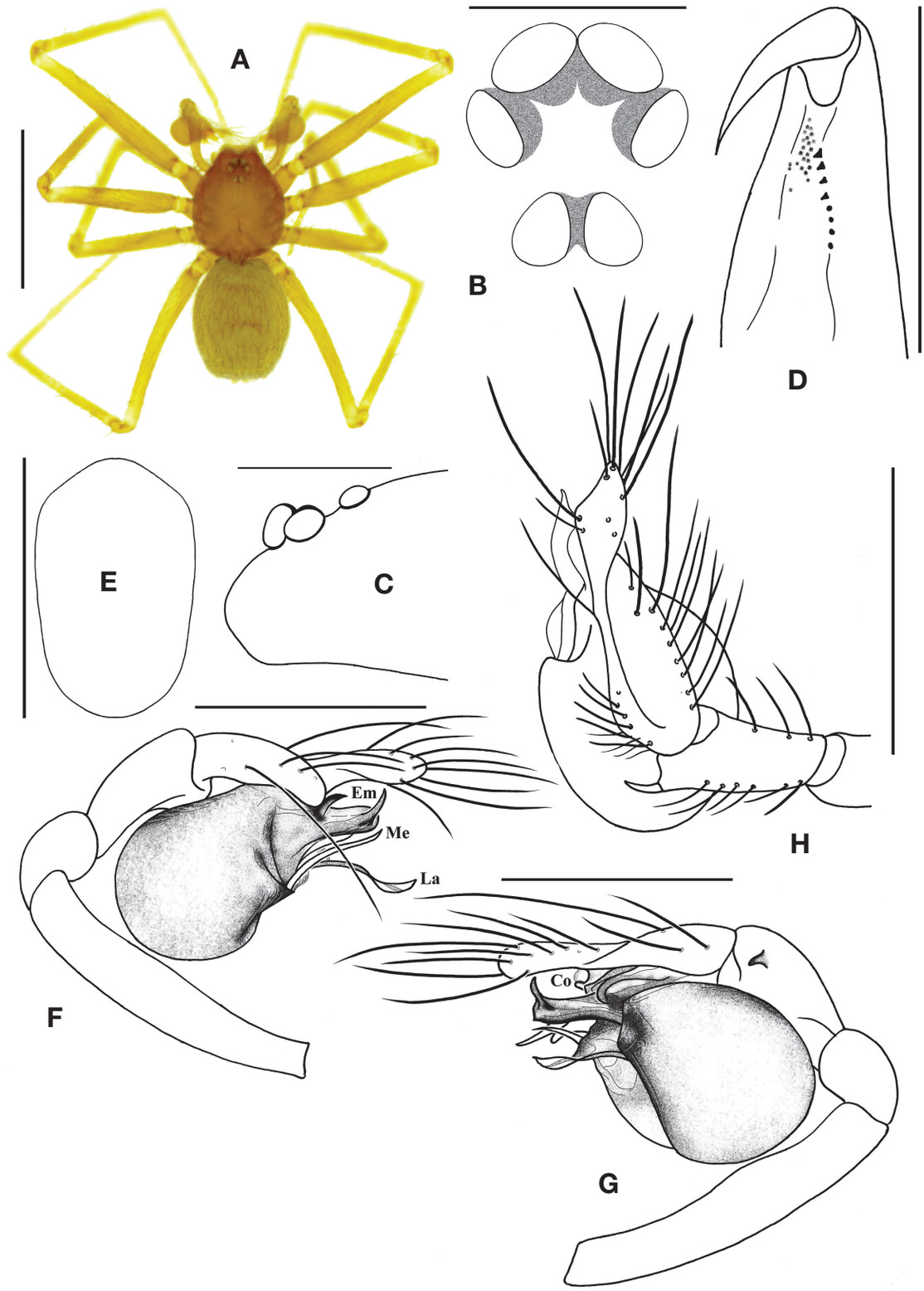

Fig. 1. *Leproneta chilbosanensis* sp. nov. A. body; B. eye area, dorsal view; C. eye area, lateral view; D. chelicera; E. Sternum; F. male palp, prolateral view; G. ditto, retrolateral view; H. ditto, dorsal view. Em, embolus; Co, conductor; Me, Median apophysis; La, Lamina. Scale bars; A. 1.0 mm, B, C. 0.1 mm, D. 0.3 mm, E. 0.5 mm, F-G. 0.2 mm.

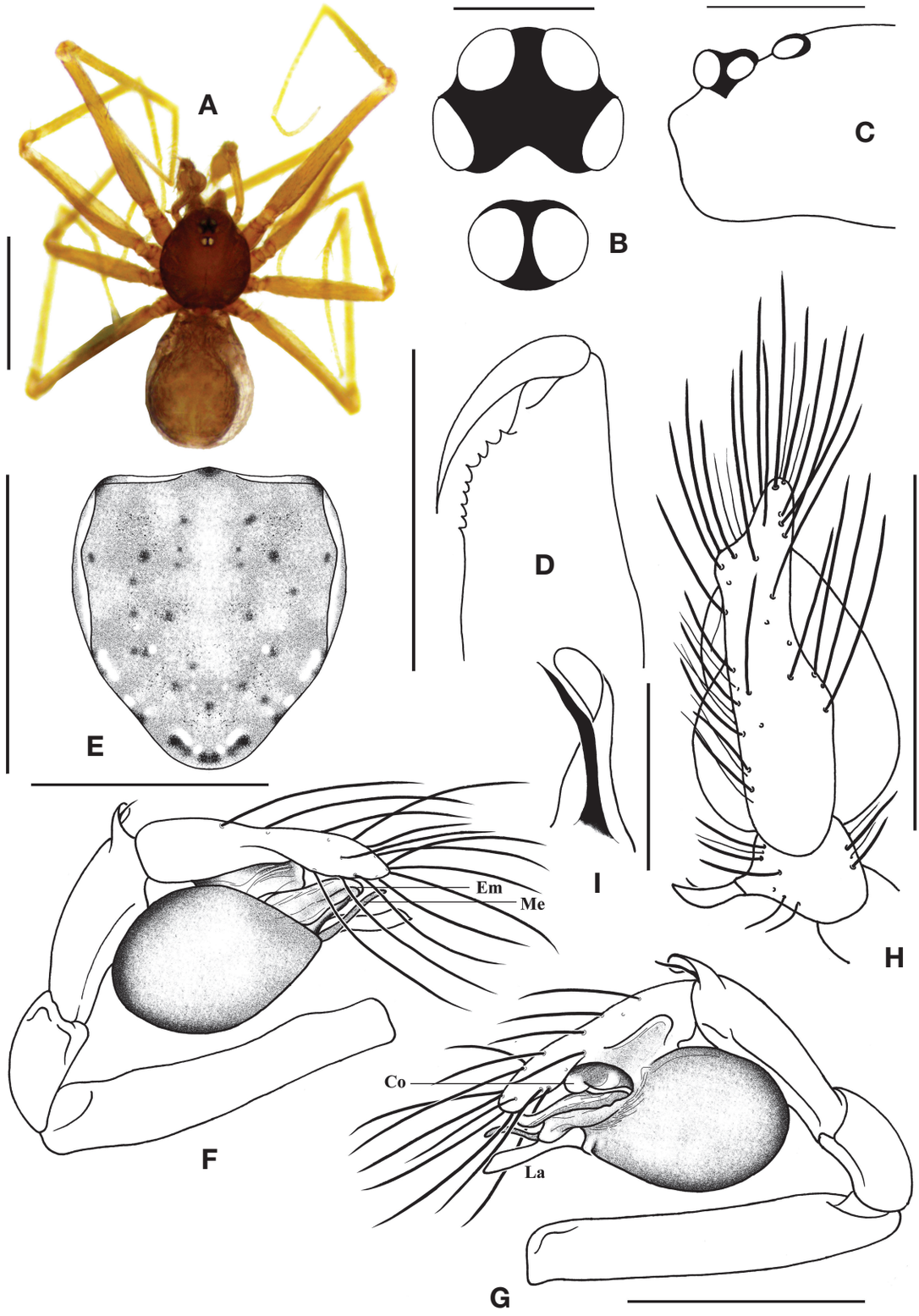

Fig. 2. *Leproneta naejangsanensis* sp. nov. A. body; B. eye area, dorsal view; C. eye area, lateral view; D. chelicera; E. Sternum; F. male palp, prolateral view; G. ditto, retrolateral view; H. ditto, dorsal view; I. tibial apophysis of palpal tibia. Em, embolus; Co, conductor; Me, Median apophysis; La, Lamina. Scale bars; A. 1.0 mm, B, C. 0.1 mm, D. 0.3 mm, E. 0.5 mm, G, H. 0.2 mm, I. 0.05 mm.

dorsal pattern (Fig. 2A). Spinnerets very tiny, pale and dull blackish brown.

Palp with strongly developed long and pointed apophysis along with twisted tibial apophysis (Fig. 2I); cymbium covered densely with long and thick spines; embolus short, beak shaped; conductor broad; median apophysis with blunt tip long and slim, needle shaped; lamina broad with truncated tip (Fig. 2F-H).

Distribution. Korea (Mt. Naejangsan, Jeongeup-si, Jollabuk-do: 35°27′53″N, 126°50′16″E, 204 m altitude).

Remarks. This species was collected with pitfall traps in the forest of mountain.

Acknowledgements

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References

Kim, S.T., J.H. Lee and J. Namkung. 2004. Two New Ground-inhabiting *Leptoneta* Spiders (Araneae: Leptonetidae) from Korea. J. Asia-Pacific Entomology 7(3): 257-261.

Kim, S.T., M.P. Jung, H.S. Kim and J.H. Lee. 2004. Two new species of litter-inhabiting spiders of the genus *Leptoneta* from Korea (Araneae: Leptonetidae). Canadian Entomologist 136:639-644.

Namkung, J. 1987. Two new cave spiders of the genus *Leptoneta* (Araneae: Leptonetidae) from Korea. Korean Arachnology 3:83-90.

Namkung, J. 2001. The spiders of Korea. 1st edition. Seoul, Korea: Kyo-Hak Publishing Co.

Paik, K.Y. 1980. The spider fauna of Dae Heuksan-do Isl., So Heuksan-do Isl., and Hong-do Isl., Jeunlanam-do, Korea. Kyungpook Educational Forum, Kyungpook National University 22:153-173.

Paik, K.Y. 1985. A new spider of the genus *Leptoneta* (Araneae: Leptonetidae) from Korea. Journal of Institute of Natural Science 4:113-117.

Paik, K.Y. and B.K. Seo. 1982. A new spider of the genus *Leptoneta* (Araneae: Leptonetidae) from Korea. Acta Arachnologica 30:65-70.

Paik, K.Y. and B.K. Seo. 1984. Two new species of Korean spiders (Araneae: Leptonetidae and Linyphiidae). Journal of Institute of Natural Science 3:97-103.

Paik, K.Y., T. Yaginuma and J. Namkung. 1969. Results of the speleological survey in South Korea 1966. XIX. Cave-dwelling spiders from the southern part of Korea. Bulletin of the National Science Museum (Tokyo) 12: 795-844.

Platnick, N.I. 2014. The world spider catalog, version 15. American Museum of Natural History, online at http://research.amnh.org/entomology/spiders/catalog/index.html DOI: 10.5531/db.iz.0001.

Seo, B.K. 1989. Description of two new species of genus *Leptoneta* (Araneae: Leptonetidae) from Korea. Korean Arachnology 5:29-37.

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